AMENDMENTS TO THE CLAIMS

The following is a complete listing of revised claims with a status identifier in parenthesis.

LISTING OF CLAIMS

1.   (Previously Presented) A method for the automatic retrieval of engineering data from an automation system with a multiplicity of individual automation objects for the restoration of representatives in an engineering system of objects of the automation system, comprising:

supplying, via the objects, an identifying designation of a type of respective representative to the engineering system;

creating, via the engineering system, corresponding representatives for the designated types and, for each of the representatives, entering a reference to the object; and

having, based upon the reference, each representative read out engineering information from the object.

2.   (Previously Presented) The method as claimed in claim 1, wherein in a first step for the restoration of device representatives in the engineering system, the method further comprises:

supplying, for devices on which the automation objects run, an identifying designation of a type of respective device representative to the engineering system,

creating, via the engineering system, corresponding device representatives for the designated types and entering, for each of the device representatives, a reference to the device,

and

having, based upon the reference, each device representative read out engineering information from the device and,

wherein, in a second step for the restoration of representatives of the automation objects in the engineering system, the method further comprises,

supplying, via the automation objects, an identifying designation of a type of respective representative to the engineering system,

creating, via the engineering system, corresponding representatives for the designated types and, for each of the representatives, entering a reference to the automation object, and

having, based upon the reference, each representative read out engineering information from the automation object.

3.   (Previously Presented) The method as claimed in claim 2, wherein, in a third step for the restoration of communication relationships between the representatives of the automation objects in the engineering system, the method further comprises:

supplying, via the devices, lists with communication relationships to the engineering system,

converting, in the engineering system, entries of the lists into references to inputs and outputs of the representatives of the automation objects and, subsequently, setting up corresponding connections up in the engineering system.

4.   (Previously Presented) The method as claimed in claim 1, wherein both the objects of the engineering system and the objects of the automation system are described by a uniform, executable object model and a direct communication at model level is possible between the objects of the engineering system and the objects of the automation system.

5.   (Previously Presented) The method as claimed in claim 3, wherein entries in the lists with communication relationships contain sources and drains of the communication relationships, the sources and drains in each case being described by a triple from an identifier of the device, an identifier of the automation object and an identifier of the input or output.

6.   (Previously Presented) The method as claimed in claim 1, wherein the objects of the automation system have no direct reference to the associated objects of the engineering system, to make it possible for the engineering system and automation system to be separated.

7.   (Previously Presented) The method as claimed in claim 1 wherein, the method is used for the updating of already existing engineering information as a delta method.

8.   (Previously Presented) A system for the automatic retrieval of engineering data from an automation system with a multiplicity of individual automation objects for the restoration of representatives in an engineering system of objects of the automation system, comprising:

objects including an identifying designation of a type of respective representative for being supplied to the engineering system, wherein the engineering system includes

means for creating representatives for the designated types, and

means for entering, for each of the representatives, a reference to the object, and

wherein the reference is provided for the reading out of engineering information from the object by each representative.

9.   (Previously Presented)   The system as claimed in claim 8, wherein for the restoration of device representatives in the engineering system,

devices on which the automation objects run, include an identifying designation of a type of respective device representative for being supplied to the engineering system,

the engineering system includes means for creating device representatives for designated types and means for entering, for each of the device representatives, a reference to the device,

the reference being provided for the reading out of engineering information from the device by each device representative and wherein, for the restoration of representatives of the automation objects in the engineering system,

the automation objects contain an identifying designation of a type of respective representative for being supplied to the engineering system,

the engineering system includes means for creating representatives for the designated types and means for entering, for each of the representatives, a reference to the automation object,

the reference being provided for the reading out of engineering information from the automation object by each representative.

10. (Previously Presented) The system as claimed in claim 9, wherein, for the restoration of communication relationships between the representatives of the automation objects in the engineering system,

the devices include lists with communication relationships for being supplied to the engineering system and

the engineering system includes means for converting entries of the lists into references to inputs and outputs of the representatives of the automation objects and means for setting up the corresponding connections in the engineering system.

11. (Previously Presented) The system as claimed in claim 8, wherein both the objects of the engineering system and the objects of the automation system are described by a uniform, executable object model and a direct communication at model level is provided between the objects of the engineering system and the objects of the automation system.

12. (Previously Presented) The system as claimed in claim 10, wherein entries in the lists with communication relationships contain sources and drains of the communication relationships, the sources and drains in each case being described by a triple from an identifier of the device, an identifier of the automation object and an identifier of the input or output.

13. (Previously Presented) The system as claimed in claim 8, wherein the objects of the automation system have no direct reference to the associated objects of the engineering system, to make it possible for the engineering system and automation system to be separated.

14.   (Previously Presented) The system as claimed in claim 8, wherein the system is used for the updating of already existing engineering information.

15.   (Previously Presented) The method as claimed in claim 2, wherein both the objects of the engineering system and the objects of the automation system are described by a uniform, executable object model and a direct communication at model level is possible between the objects of the engineering system and the objects of the automation system.

16.   (Previously Presented) The method as claimed in claim 3, wherein both the objects of the engineering system and the objects of the automation system are described by a uniform, executable object model and a direct communication at model level is possible between the objects of the engineering system and the objects of the automation system.

17.   (Previously Presented) The method as claimed in claim 4, wherein entries in the lists with communication relationships contain sources and drains of the communication relationships, the sources and drains in each case being described by a triple from an identifier of the device, an identifier of the automation object and an identifier of the input or output.

18.   (Previously Presented) The method as claimed in claim 15, wherein entries in the lists with communication relationships contain sources and drains of the communication relationships, the sources and drains in each case being described by a triple from an identifier of

the device, an identifier of the automation object and an identifier of the input or output.

19.   (Previously Presented) The method as claimed in claim 16, wherein entries in the lists with communication relationships contain sources and drains of the communication relationships, the sources and drains in each case being described by a triple from an identifier of the device, an identifier of the automation object and an identifier of the input or output.

20.   (Previously Presented) The system as claimed in claim 9, wherein both the objects of the engineering system and the objects of the automation system are described by a uniform, executable object model and a direct communication at model level is provided between the objects of the engineering system and the objects of the automation system.

21.   (Previously Presented) The system as claimed in claim 10, wherein both the objects of the engineering system and the objects of the automation system are described by a uniform, executable object model and a direct communication at model level is provided between the objects of the engineering system and the objects of the automation system.

22.   (Previously Presented) The system as claimed in claim 11, wherein entries in the lists with communication relationships contain sources and drains of the communication relationships, the sources and drains in each case being described by a triple from an identifier of the device, an identifier of the automation object and an identifier of the input or output.

23.   (Previously Presented) The system as claimed in claim 20, wherein entries in the lists with communication relationships contain sources and drains of the communication relationships, the sources and drains in each case being described by a triple from an identifier of the device, an identifier of the automation object and an identifier of the input or output.

24.   (Previously Presented) The system as claimed in claim 21, wherein entries in the lists with communication relationships contain sources and drains of the communication relationships, the sources and drains in each case being described by a triple from an identifier of the device, an identifier of the automation object and an identifier of the input or output.

25.   (Previously Presented)   The method of claim 2, wherein the first step for the restoration of device representatives in the engineering system is initiated from a software system.

26.   (New) A method for the automatic retrieval of engineering data from an automation system having an engineering system and a multiplicity of individual runtime automation objects in a runtime system, comprising:

supplying, via the runtime automation objects, identifiers each identifying a type of engineering representative, corresponding to one of the runtime automation objects, to the engineering system;

creating, via engineering system, for each of the types, a corresponding

engineering representative and entering a reference to the corresponding runtime automation object in each of the engineering representatives; and

      having each engineering representative read out engineering data from the corresponding runtime automation object.

      27.   (New) A system for the automatic retrieval of engineering data from an automation system having an engineering system and a multiplicity of individual runtime automation objects in a runtime system, wherein:

      the runtime automation objects are configured to supply identifiers each identifying a type of engineering representative corresponding to one of the runtime automation objects to the engineering system; wherein

      the engineering system includes,

      means for creating, for each of the types, a corresponding engineering representative, and entering a reference to the corresponding runtime automation object in each of the engineering representatives; and wherein

      each engineering representative is provided for the reading out of engineering data from the corresponding runtime automation object.